

AMENDMENTS TO THE ABSTRACT

Replace the Abstract with:

~~[DOCUMENT]~~

ABSTRACT

An optical encoder includes: ~~a~~ an incoherent light source; a first grating, which is ~~composed of~~ an amplitude grating having a first grating period P_1 , for spatial amplitude modulation of the incoherent light from the light source; a second grating, which is ~~composed of~~ a phase grating having a second grating period P_2 , for spatial phase modulation of light from the first grating; a third grating, which is ~~composed of~~ an amplitude grating having a third grating period P_3 , for spatial amplitude modulation of light from the second grating; and a ~~light-receiving~~ detecting element ~~for-receiving detecting light-of from~~ the third grating, wherein the. The encoder detects ~~a~~ relative displacement between the respective gratings, ~~thereby enhancing~~ OTF. The optical transfer function from the light source to the ~~light-receiving~~ detecting element is enhanced, and ~~greatly improving the efficiency of in~~ utilizing light is improved.